Digital IR Audio Distribution System

User Manual

TS-0370H-8/TS-0370H-16

TS-0370HS/TS-0370HC

TS-0370HD/TS-0370HY

Before using this system, please read this manual carefully

Notification

WARNING

To ensure the reliability of the equipment and the safety of personnel, please observe the following when installing, using and maintaining:

- If any of the following conditions are found, please immediately turn off the power, plug out and quickly contact your nearest dealer. Do not continue using this unit, which may cause a fire or electric shock.

  - If you find smoke or have a strange taste from the machine.
  - If water or metal falls into the machine.
  - If the unit is dropped or the case is damaged.
  - If the wire is damaged (wire core exposure, broken wire, etc.).

- If the machine contains high-pressure parts, in order to avoid the fire or electric shock, absolutely don't open the case, if any questions please inform your nearest dealer.
- Do not place cups, bowls, vases or metal and other water-filled substances on the unit. Serious spilled liquid may cause a fire or electric shock.

- Never expose the unit to rain and any moisture or water, which may cause electric shock or fire.

- Do not place metal objects or flammable materials from the vents on the machine cover, nor place coins, which may cause fire or electric shock.

- Do not place heavy objects on the unit to avoid personal injury or property damage when the unit is slipping.

- Make sure that the volume is turned on at the beginning of the boot, and the high volume of the boot may cause hearing problems.

- Make sure that the volume is turned on at the beginning of the boot, and the high volume of the boot may cause hearing problems.

- For long-term accumulation of dust to be cleaned, please inform your dealer to regularly clean the machine, so as to avoid damage to the machine or cause a fire.

- The battery must be replaced with the same type of product and the correct installation should be made in order to avoid electrical damage and explosion hazard.

- The product is a Class III device. The device must be well connected to ground. The power plug must be connected to a power outlet with a grounding device to ensure that the equipment is fully grounded.

- This product uses a power plug or appliance input socket as a disconnecting device with the power supply, and must be disconnected if necessary for safety reasons.
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This equipment is only suitable for safe use at altitudes under 2000 meters.

Precautions

1. The installation environment

When installing the unit, in order to ensure the normal cooling of the host, should avoid the poor ventilation of the place or high temperature environment, to avoid direct sunlight.

Recommend to install cabinet or other well-ventilated place indoor. If you use the machine in the outdoors, please pay attention to waterproof, moisture, lightning protection measures.

Avoid installing in a violent place of vibration; do not place other equipment on the machine.

2. To avoid electric shock and fire

Do not touch the hands and the source with wet hands

Do not spill liquid on the machine, so as to avoid short-circuit or fire inside the machine.

Do not place other equipment directly on the top of the unit.

Non-professional service personnel Do not disassemble the unit yourself to avoid damage and electric shock.

3. Transport and handling

The packaging of the machine is designed and tested to ensure that the host will not be accidentally damaged during transport. It is best to use the original packaging when handling the unit.

Do not move the host device between the place or cold or over hot to avoid condensation inside the machine, affecting equipment life.

4. Please follow the warning instructions on this product, the warning signs on behalf of:

	Applicable to 2000 meters above sea level and below safe use
	Safe use only in non-tropical climates

5. Agreement

Please strictly follow the instructions in this manual. The software, hardware and appearance of this product will be upgraded and updated continually. The above changes will be made without notice.

Non-professional maintenance personnel, do not remove the product, to avoid damage and electric shock.

CONTENTS

1.System Overview

1.1.About Digital IR Audio Distribution System

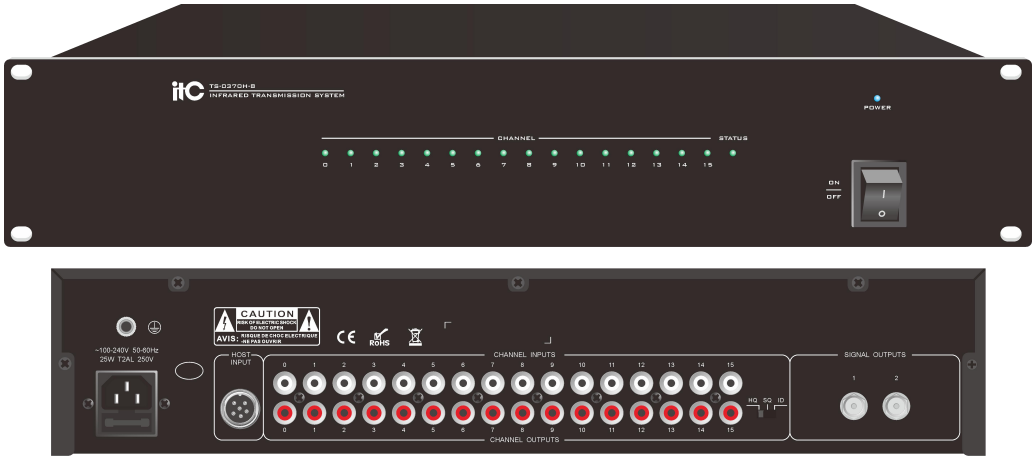
The digital IR audio distribution system adopts all-digital modulation and demodulation technology. In the conference simultaneous interpretation system, the interpreter simultaneously interprets the original speech of the speaker, and the translated language will be transmitted in the venue through modulated infrared rays. Conference delegates can select the language they want to listen to through the infrared receiver and listen through headphones.

The digital IR audio distribution system realizes the audio transmission through infrared rays. Since the infrared ray is characterized by straight-line transmission, and there is no signal outside the confined space, it has excellent confidentiality performance. Moreover, due to the scattering and diffusion of infrared rays on the walls, floors and ceilings in the room, the infrared signals emitted by the infrared transmitter will build a dense optical network. Within the range that infrared rays can reach, the number of receiver units can be flexibly configured.

The system can also be used in other locations where audio signal distribution is required, such as music distribution. Featuring high frequency accuracy, high stability and reliability, high security, anti-interference and eavesdropping performance, it is suitable for various international conference venues or multilingual teaching scenarios.

2.Product Profile

2.1.TS-0370H-8 8-Channel digital IR transmitter



The digital infrared transmitter is the core of the digital infrared voice distribution system. It compresses and encodes digital audio into full digital DQPSK modulation for transmission, and the system can transmit 8 channels at the same time. The infrared transmitter can be installed in a 19-inch standard cabinet, which is easy to store and operate.

2.1.1.Features

1.In line with IEC 61603-7.

2.With 8 audio outputs, it can be used for monitoring or connecting a deck for recording.

3.With 2 signal output interfaces (BNC), it can be connected to the IR radiator.

4.Adopt full digital DQPSK modulation technology, with high security.

5.High-speed DSP processing, beautiful sound quality.

6.Adopt higher transmission frequency (2-6MHz, IEC61603 BAND4 frequency band), not interfered by high frequency driving light source.

7.With input level indication function, the LED lights on the front panel can display the input status of the corresponding channel.

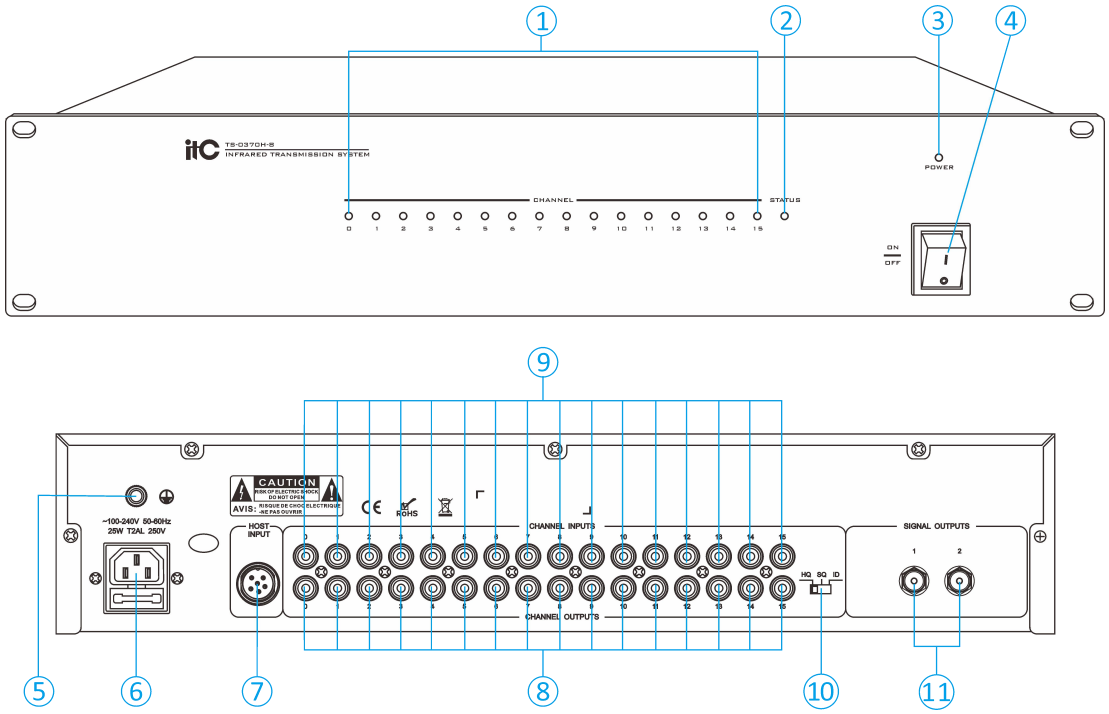
8.With 8 audio inputs, it is suitable for large international conference venues.

9.Compatible with full digital conference system, full digital conference audio can be obtained through the aviation cable, and infrared simultaneous interpretation can be performed.

10.The power input is AC 100V-240V, 50-60Hz; it has passed the high voltage (3500V) test before leaving the factory to ensure compliance with safety standards.

11.The housing is made of metal materials; the connection between the circuit and the hosing and the ground wire is strengthened to ensure the ability to resist 8000V static electricity.

2.1.2.Function introduction



① Audio signal indication of channel 0~15, light on means there is a signal, off means the signal is weak or no signal.

② Network working indicator. When it is normally connected with the interpreter unit or the full digital conference system host, the indicator light keeps flashing; when there is no connection or connection failure, the indicator light is off.

③ Power indicator.

④ Power switch.

⑤ Grounding post.

⑥ Power input socket, AC 100-240V.

⑦ Interface connected to the interpreter unit or the full digital conference system host (Note: no external power supply, the interpreter unit should be equipped with an adapter).

⑧ 16-channel audio output RCA interface, connected to recording or audio (Note: the first 8 channels have sound, the rear 8 channels have no sound).

⑨ 16-channel audio input RCA interface, connected to the audio source (note: the first 8 channels have sound, the rear 8 channels have no sound).

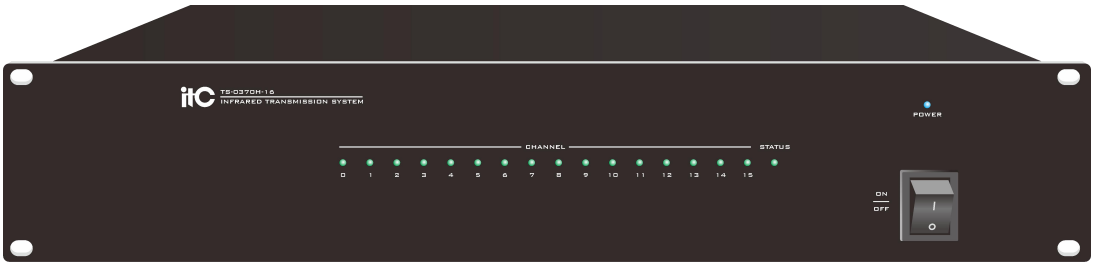
⑩ ID: interpreter ID; HQ: 8-channel high-quality infrared modulation frequency, audio bandwidth 20Hz-20KHz; SQ: 8-channel normal sound volume modulation, audio bandwidth 20Hz-10KHz.

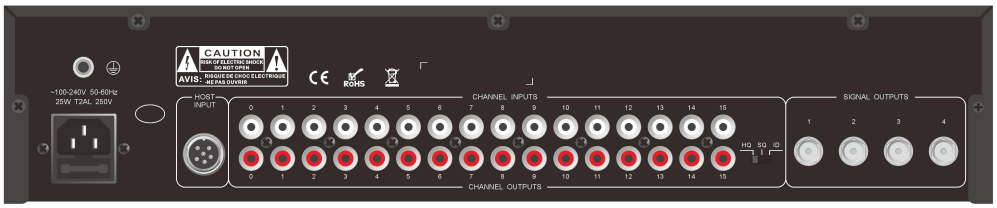
⑪ 8-channel audio output according to the DQPSK modulation signal in the infrared frequency band, BNC interface output, connected to the BNC input interface of the IR radiator.

2.1.3.Specification

Model	TS-0370H-8
Number of interpreter units	378
Number of channels	8CH
Frequency response	High sound quality: 50Hz~20KHz Low sound quality: 120Hz~10KHz
SNR	>75dB(A)
Dynamic range	>80dB
Channel crosstalk	>80dB
THD	<0.05%
Input voltage	~96V-264V 50-60Hz
Audio input	LINE IN 0-7: 350mV unbalanced
Audio output	LINE OUT 0-7: 1V unbalanced
Output load	>1KΩ
Static power	25W
Connection method	BNC (standard 75-5Ω coaxial cable)
Connector reliability	Reliable
Working temperature	-10℃~+60℃
Working humidity	20%～80% relative humidity, no condensation
Color	Black
Installation method	19-inch standard cabinet
Dimension (L×W×H)	484×305×88mm
Weight	4.23Kg

2.2.TS-0370H-16 16-Channel digital IR transmitter





The digital infrared transmitter is the core of the digital infrared voice distribution system. It compresses and encodes digital audio into full digital DQPSK modulation for transmission, and the system can transmit 16 channels at the same time. The infrared transmitter can be installed in a 19-inch standard cabinet, which is easy to store and operate.

2.2.1.Features

1.In line with IEC 61603-7.

2.With 16 audio outputs, it can be used for monitoring or connecting a deck for recording.

3.With 4 signal output interfaces (BNC), it can be connected to the IR radiator.

4.Adopt full digital DQPSK modulation technology, with high security.

5.High-speed DSP processing, beautiful sound quality.

6.Adopt higher transmission frequency (2-6MHz, IEC61603 BAND4 frequency band), not interfered by high frequency driving light source.

7.With input level indication function, the LED lights on the front panel can display the input status of the corresponding channel.

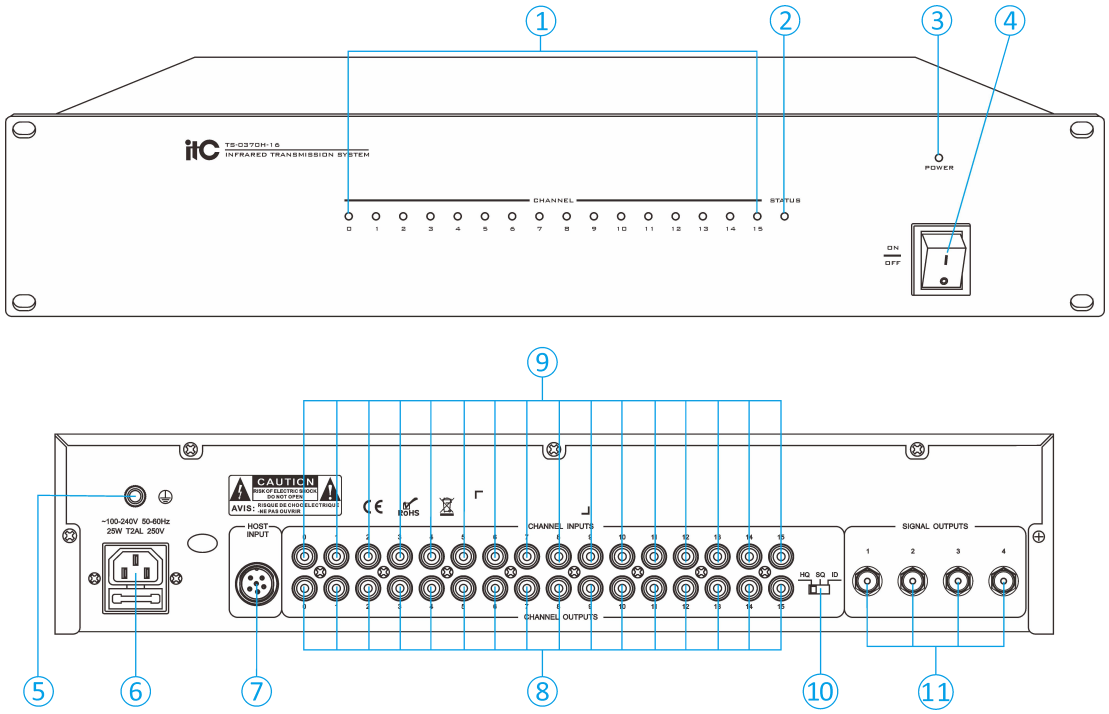
8.With 16 external audio inputs, it is suitable for large international conference venues.

9.Compatible with full digital conference system, full digital conference audio can be obtained through the aviation cable, and infrared simultaneous interpretation can be performed.

10.The power input is AC 100V-240V, 50-60Hz; it has passed the high voltage (3500V) test before leaving the factory to ensure compliance with safety standards.

11.The housing is made of metal materials; the connection between the circuit and the hosing and the ground wire is strengthened to ensure the ability to resist 8000V static electricity.

2.2.2.Function introduction



① Audio signal indication of channel 0~15, light on means there is a signal, off means the signal is weak or no signal.

② Network working indicator. When it is normally connected with the interpreter unit or the full digital conference system host, the indicator light keeps flashing; when there is no connection or connection failure, the indicator light is off.

③ Power indicator.

④ Power switch.

⑤ Grounding post.

⑥ Power input socket, AC 100-240V.

⑦ Interface connected to the interpreter unit or the full digital conference system host (Note: no external power supply, the interpreter unit should be equipped with an adapter).

⑧ 16-channel audio output RCA interface, connected to recording or audio.

⑨ 16-channel audio input RCA interface, connected to audio source.

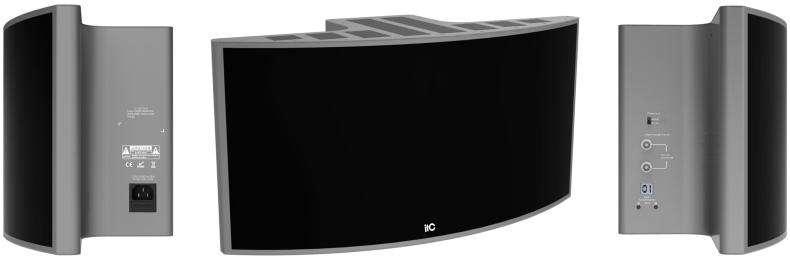
⑩ ID: interpreter ID; HQ: 16-channel high-quality infrared modulation frequency, audio bandwidth 20Hz-20KHz; SQ: 16-channel normal sound quality volume modulation, audio bandwidth 20Hz-10KHz.

⑪ 16-channel audio output according to the DQPSK modulation signal in the infrared frequency band, BNC interface output, connected to the BNC input interface of the IR radiator.

2.2.3.Specification

Model	TS-0370H-16
Number of interpreter units	378
Number of channels	16CH
Frequency response	High sound quality: 50Hz~20kHz Low sound quality: 120Hz~10kHz
SNR	>75dB(A)
Dynamic range	>80dB
Channel crosstalk	>80dB
THD	<0.05%
Input voltage	~96V-264V 50-60Hz
Audio input	LINE IN 0-15: 350mV unbalanced
Audio output	LINE OUT 0-15: 1V unbalanced
Output load	>1KΩ
Static power	25W
Connection method	BNC (standard 75-5Ω coaxial cable)
Connector reliability	Reliable
Working temperature	-10℃~+60℃
Working humidity	20%～80% relative humidity, no condensation
Color	Black
Installation method	19-inch standard cabinet
Dimension (L×W×H)	484×305×88mm
Weight	4.23Kg

2.3.TS-0370HS IR Radiator

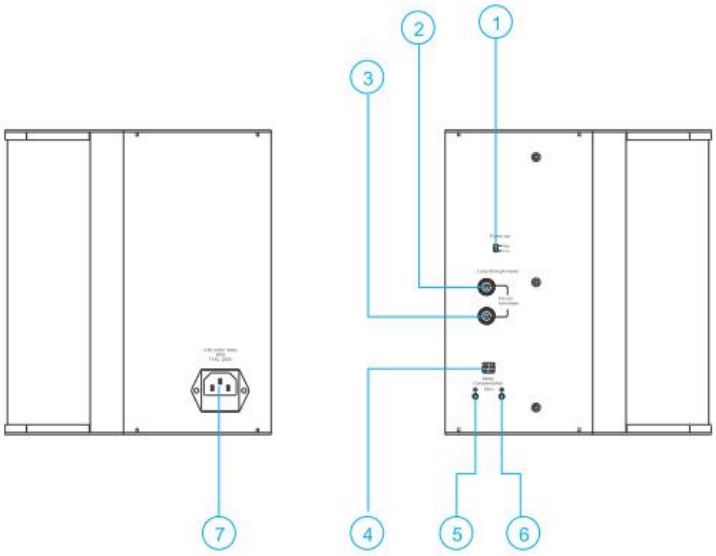


The IR radiator is a high-power IR device, used to receive the carrier signal from the IR transmitter, and transmit the carrier signal through infrared rays. It supports hand-in-hand connection mode, and up to 30 radiators can be connected at the same time.

2.3.1.Features

1.Strong signal transmitting ability, the maximum distance can reach 25 meters; realize 500 meters transmission distance after cascading.
2.Transmitting angle: 135°.
3.Cable delay compensation functions.
4.The standby function: the IR radiator will enter into standby status when there is no signal received, or there is no signal output from the controller. The standby power is 3W.
5.The radiation intensity can reduce by half. Reduce signal power, easy to use in small spaces.
6.The arc structure enables large radiation angle and wide radiation coverage.

2.3.2.Function introduction



① High/low high power transmission or normal power transmission, the normal transmission distance of the IR radiator is within 30 meters, dial to low; if the receiver exceeding 30 meters receives infrared signals, you need to dial to high, and turn on the panel light.

② DQPSK modulation signal input interface, connected to the signal modulated by the infrared host.

③ DQPSK modulation signal output interface, connected to the next IR radiator or connected to a dummy load (add the factory-configured 75ohm dummy load at the end of the line to increase stability).

④ Delay time adjustment display, 0-99 delay adjustment on the side of the panel, each delay is 25nS. A single radiator does not need to configure the cable delay compensation parameters, while multiple radiators need to be set. For how to set the calculation formula, see the description below.

⑤ Reduce the delay time.

⑥ Increase the delay time.

⑦ Power input socket (AC 100-240V).

2.3.3.Specification

Model	**TS-0370HS**
Input voltage	~100-240V 50-60Hz
Rated power	36W
Frequency range	2MHz~6MHz
IR radiant power	33W
RF output impedance	75Ω
RF input	100mV-3V 10KΩ
Gain control	AGC automatic gain control
Auto threshold control	100mV RF signal start
Standby power consumption	3W
Color	Black
Dimension (L×W×H)	478×228×208mm
Weight	5.3Kg

2.4.TS-0370HD IR Receiver

The IR receiver unit adopts the latest electronic technology and uses special chips to ensure the best performance and longest battery lifespan. It is ergonomically designed and can receive infrared signals well. It has channel selection function and volume adjustment function, power switch control and battery power and signal indication functions. When the receiver cannot receive a signal for 5 minutes or the earphone is unplugged, it will automatically shut down.

2.4.1.Features

1.In line with IEC61603-7.

2.Full digital DQPSK digital demodulation technology.

3.Adopt higher transmission frequency (2-6MHz, IEC61603 BAND4 frequency band), not interfered by high frequency driving light source.

4.Push-button channel selection, support the reception of 16 audio channels.

5.Support LCD display of channel number, battery power and signal status indication.

6.The volume can be adjusted freely.

7.No noise. When the signal is too low, the signal is automatically muted to ensure that users can only receive high-quality signals.

8.Designed with an exquisite and smooth appearance; equipped with a lanyard to hang the receiver on the chest or put it in the pocket, which is convenient to use.

9.Not limited by seats at the venue, the speaker can move around freely within the signal transmission range.

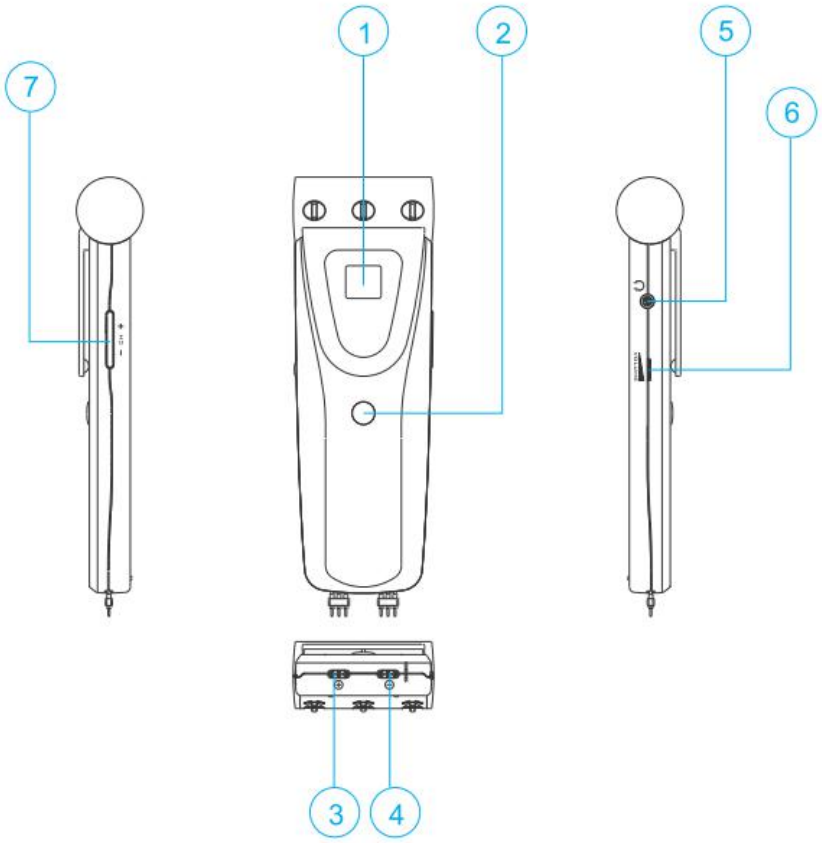
10.Within the effective range of infrared radiation, the number of receiver units is not limited.

11.When the receiver cannot receive a signal for 5 minutes or the earphone is unplugged, it will automatically shut down.

12.Come with premium earphones.

13.Support standardized demodulation, receive and demodulate standardized signals from other servers.

2.4.2.Function introduction



① Channel, signal, battery display.

② Power switch, short press to turn on, long press for 3 seconds to turn off.

③ Charging positive input.

④ Charging negative input.

⑤ Headphone output interface.

⑥ Volume adjustment knob.

⑦ Channel switch.

2.4.3.Specification

Model	TS-0370HD
Power supply	3.7V 800mAh removable lithium battery
Demodulation mode	Full digital DQPSK digital demodulation technology
Carrier frequency	2.0~6.0MHz
Frequency response	120Hz~10KHz (standard) 20Hz~20KHz (high sound quality)
Maximum SNR	>80dB
Headphone load	8-32Ω
Headphone volume	40mW MAX
Headphone jack	3.5mm mono jack
THD	<1%
Rated power	100mW
Standby power	8mW
Dimension (L×W×H)	58×176×32mm
Weight	0.11Kg

2.5.TS-0370HC IR Receiver Charging Box

It is the charging box for the digital infrared receiving unit. The red light indicates that it is charging, and the green light indicates that the battery is fully charged.

2.5.1.Feature

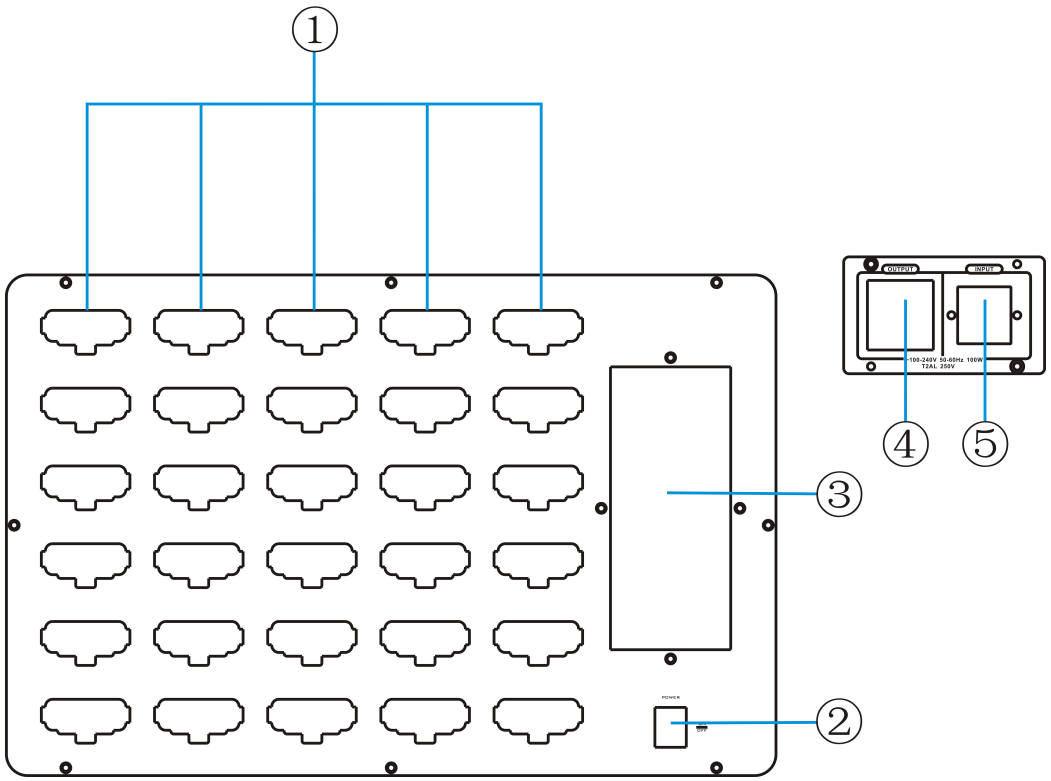
1.30 receiver units can be charged at the same time.

2.The power input has a serial connection function.

3.Fast charging takes 3 hours to fully charge; the maximum charging time is 8 hours.

4.In addition to charging function, it can also act as a storage box for the receivers.

2.5.2.Function introduction



① 30 receiver charging docks.

② Power switch.

③ Power cable storage box.

④ Power output interface (EN/GB).

⑤ Power input socket (AC100-240V).

2.5.3.Specification

Model	TS-0370HC
Input voltage	~100V-240V 50-60Hz
Maximum power consumption	100W
Standby power consumption	17W
Dimension (L×W×H)	627×385×238mm
Weight	10Kg

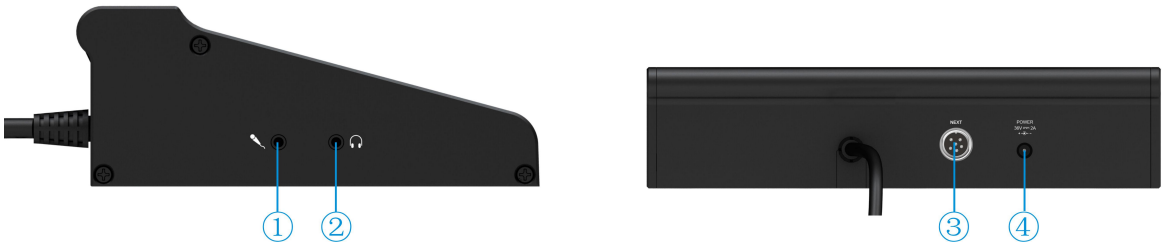
2.6.TS-0370HY Interpreter Unit

It is a full-featured full digital conference system interpreter unit. It is a device used by conference interpreters to translate the speaker's speech into various national languages during the conference. It has built-in speakers and pluggable microphone poles, as well as headphone and headset jacks, etc. It can preset multiple input/output language channels, and has corresponding shortcut keys, which is convenient for interpreters to operate. It adopts Ethernet transmission technology, which features strong anti-interference, low noise, good sound quality and stable and reliable operation. It is the most advanced wired transmission technology at present. It is beautiful and fashionable in design, simple and refreshing in appearance and beautiful in lines. It has the functions of simultaneous interpretation, direct translation and indirect translation in 63+1 languages, meeting the application requirements for simultaneous interpretation by translators in multilingual conferences. With the development of international trade and the rise of the exhibition economy, the market demand for conference system interpreter equipment is constantly rising. Both domestic and international markets are huge, and the market prospects will be more and more optimistic.

2.6.1.Feature

1.Original clock synchronization and transmission technology, audio delay is less than 5ms, sampling rate 48K uncompressed audio transmission. The Cat5e shield cable ensures reliable transmission of conference information and perfect sound quality in long distance.
2.Support 5-band EQ adjustment function. Different sound effects can be adjusted according to the voice characteristics of the speaker until the perfect effect is achieved.
3.7-inch touch color screen, delicate UI interface.
4.Knob type plug microphone pole, dual color indicator light, red light indicates speaking.
5.With internal magnetic speaker, earphone jack and volume adjustment knob.
6.Support headphone and microphone pickup.
7.The language of each channel can be preset at will.
8.It has the functions of direct interpretation and indirect interpretation; when the translator cannot understand the speaker's language, they can perform a second interpretation by monitoring the interpretation of other translators.
9.Support short message function, it can receive information sent from the background.
10.With the tea application function. You can apply for tea through the button.
11.With HELP function. When translators need help, they can initiate a help application to the PC.
12.With cough elimination function. When the translator coughs, it can MUTE the coughing sound.
13.When the speaking speed is too fast, you can press the SLOW button to ask the speaker to slow down.
14.With speech timekeeping function. Translators can be timed in real time after starting work (billed by time).
15.A maximum of 63 languages can be translated at the same time, and a maximum of 6 interpreter units can be installed in one translator room.
16.3 fast input channel can be preset, which have corresponding shortcut keys (a/b/c).
17.With input channel selection button, you can easily select among all input language channels.
18.3 fast output channel can be preset, which have corresponding shortcut keys (A/B/C).
19.With output channel selection buttons, you can easily select language from all the language output channels.
20.With interlock mode. If one unit microphone in this interpretation room is open, the other interpreter unit microphones cannot be turned on to ensure consistency between the channel and the language.
21.With preemption mode. The same channel of different interpreter units in the same room can be preempted, and the interpreter unit occupying the channel can be closed at the same time. If different channels preempt, a warning will be prompted.

2.6.2.Function introduction



① Headset port——headphone input port, you can speak through the headset;

② Headphone output port——listen to different channels through the headphone port;

③ NEXT——used to cascade the next interpreter unit or conference unit;

④ POWER——for external power supply, DC 36V power input.

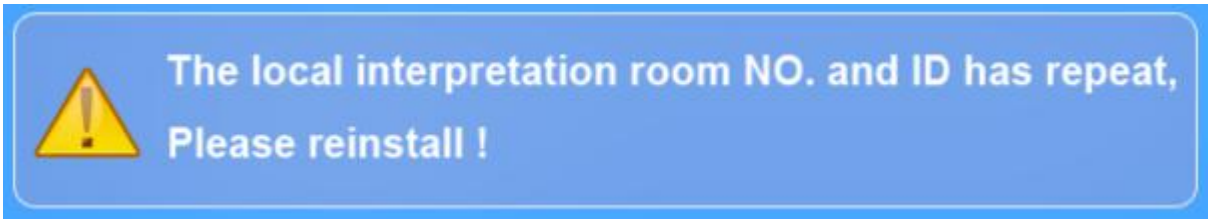
2.6.3.OPERATION INSTRUCTIONS

After connecting to the platform, open the conference controller:

2.6.3.1.ID setting

On the touch screen of the controller, ID editing of the interpreter' machine can be started. The interface will display the current room number, ID number, local room number and local ID number; press OK button, and the red indicator of the microphone will flash once and then stay still, which means ID editing is done; the room number and ID number will be updated (ID number 4097~4474, room number 1-63; each room allows 6 ID numbers). To keep pressing the OK button will enter the next ID editing interface... Finish all the ID settings, the interpreter machine returns to the main interface.

If there are repeated ID numbers, the interface of the repeated interpreter will give prompt. Click OK button to return to the main interface, and then reedit them.

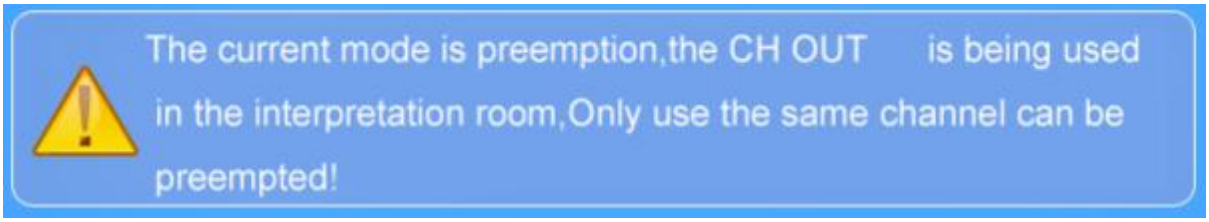


2.6.3.2.Mode management

1. Preemptive mode

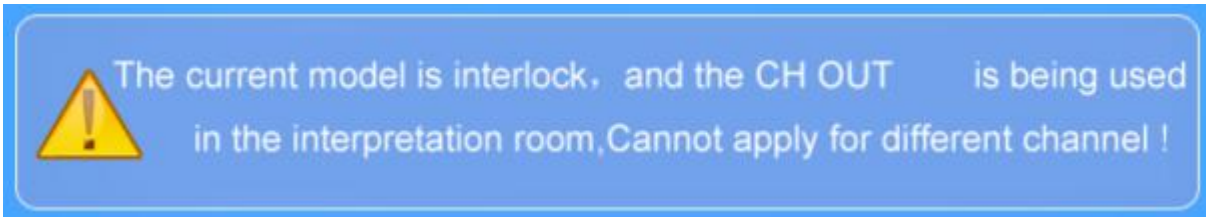
When choosing"seize"In mode, the same channel of different interpreters in the same room can

be preempted, and the translation unit occupying the channel can be closed at the same time(Note that only the same channel can be successfully preempted), If the channel is different for preemption, a warning will be prompted. Click on OK back to main interface.



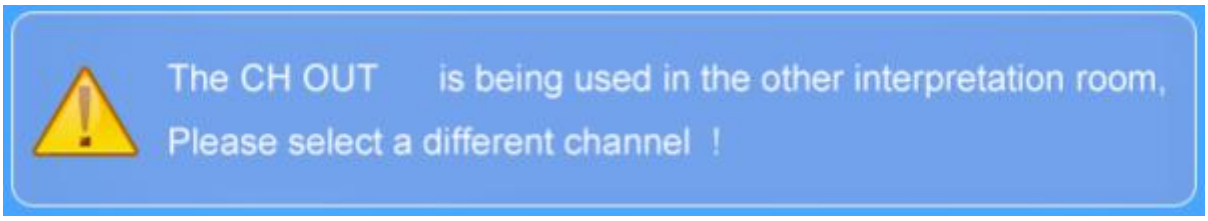
2. Internal interlock mode between translators

When the "interlock" mode is selected, if there is a unit microphone in the translation room that is open, other translation unit microphones cannot be turned on. If the unit to be turned on is the same as the unit output channel that has been turned on, it will enter the waiting state. When the is closed, the waiting will be automatically opened, otherwise the waiting will be cancelled automatically after 10S. If the output channel of the unit to be turned on is different from the output channel of the unit that has been turned on, a warning will be prompted to apply for the same channel. Click OK to return to the main interface.



The input and output channels of the same interpreter cannot be the same, otherwise it will prompt, click OK back to main interface.

When the channels outside the translation room are the same, you will be prompted, click OK back to main interface.

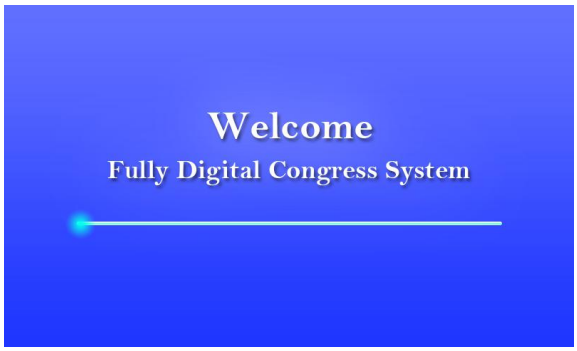


2.6.3.3.Fire alarm

When the controller fire alarm, the interpreter will enter the fire alarm interface, and it can be used normally only after the alarm is canceled.

2.6.3.4.Switching the homepage channel

When the interpreter is turned on, the startup interface and main interface of the display screen are as follows:



Startup interface

Main interface

Input channel:

Adjust the main interface a,b,c Button to switch quickly CH IN Channel,orignal channel Button can be quickly switched to 0 Channel to listen to the original sound, the increase and decrease buttons on the right are also used to adjust CH IN Channel (0-63), the default maximum number of channels is 63.

Output channel:

Adjust the main interface A,B,C Button to switch quickly CH OUT. When the microphone is turned on, the functions of these buttons are invalid. The increase and decrease buttons on the right are also used to adjust CH OUT Channel (1-63), the default maximum number of channels is 63 channel.

2.6.3.5.Tea

After clicking the tea application icon  (Tea), initiate a tea application to the PC, the interpreter machine interface jumps to the tea interface, the tea application is successful, there will be a prompt on the PC, click the Return Homepage button to return to the homepage.

2.6.3.6.Help

After clicking the help application icon  (Help), initiate a help application to the PC, the interpreter interface jumps to the help interface, the help application is successful, there will be a prompt on the PC, click the Return Homepage button to return to the homepage.

2.6.3.7.Slow

Click the slow icon  (Slow) After the interpreter machine interface jumps to the slow interface, the slowdown application is successful, click Return Homepage. The button returns to the homepage, and other units that are talking enter the request deceleration interface.

2.6.3.8.Cough

Tap the cough icon (Cough), the voice of the microphone will not be uploaded to avoid uploading other voices of the user, click again to cancel the cough elimination, and the cough elimination will be canceled after the microphone is closed.

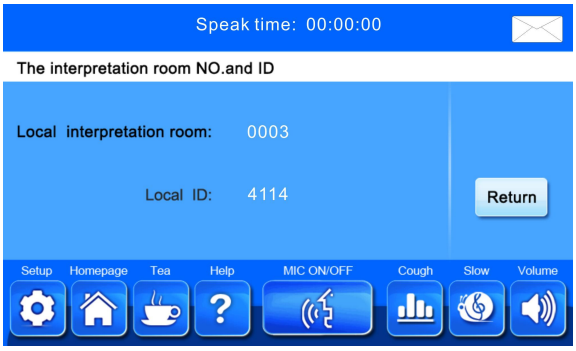
2.6.3.9.Volume

Click the volume icon(volume)to enter the volume adjustment interface, click+- button to adjust the volume of the headphones and speakers, and you can also drag the progress bar in the middle.

2.6.3.10.ID and translation room query

Click Setup to enter the setting interface, then click The interpretation room NO.and ID to enter the query display interface, you can see the local room and local ID, click return to return to the setting interface.

Set interface



Translation room and ID query interface

2.6.3.11.Fast input channel preset

Click Setup to enter the setting interface, then click Pre-set fast input channel to enter the fast input channel preset interface, click a, b, c to switch the selection, the selected one is yellow, and the +-button to adjust the corresponding channel language (0 -63). After selecting, click OK to save the input shortcut preset language, return to return to the setting interface.

Quick input channel preset interface

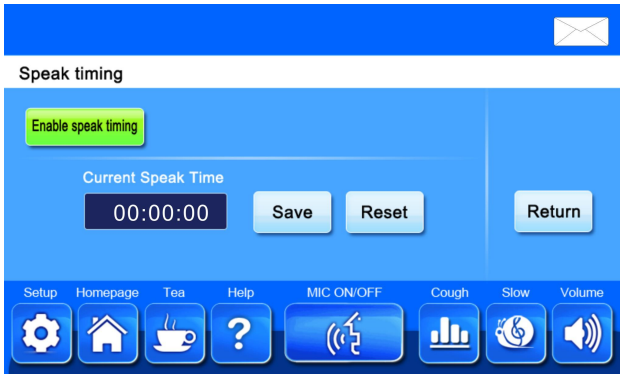
2.6.3.12.Fast output channel preset

Click Setup to enter the setting interface, then click Pre-set fast output channel to enter the fast output channel preset interface, click A, B, C to switch between selections, the selected one is yellow, and the +-button to adjust the corresponding channel language (1-63), after selecting, click OK to save the output shortcut preset language, return to return to the setting interface.

Fast output channel preset interface

2.6.3.13.Speaking timing

Click Setup to enter the setting interface, then click speak timing to enter the speaking timing interface, click Enable speak timing to turn on the speaking timing function, and click Disable speak timing to turn off the speaking timing function (when turned on, the top of the interface will display the speaking time, and the microphone will start timing.), click the SAVE button to save the current speaking time, the next time the power is turned on, the time will be remembered from this saved time, click the RESET button to clear the time to 0, and click return to return to the setting interface, as shown in the following figure:

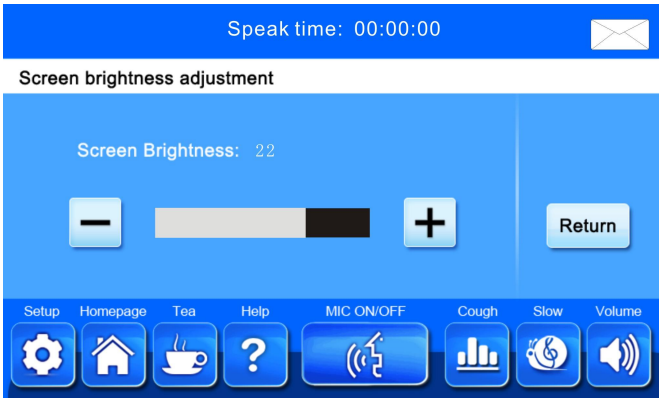


Open the speech timing interface

Close the speech timing interface

2.6.3.14.Screen brightness

Click Setup to enter the setting interface, then click Screen brightness adjustment to enter the brightness adjustment interface, click the +- button to adjust the brightness of the screen, or drag the progress bar in the middle (does not have the power-down save function).



Brightness adjustment interface

2.6.3.15.Short Message

When there is a short message, a small red dot will be displayed on the envelope in the upper right corner of the interface, click on the envelope to enter the short message interface to view. After reading, click Homepage to return to the main interface. After reading, the small red dot on the envelope disappears.

2.6.3.16.Headphone output

After the earphone is inserted, the status bar at the top of the interface will display the earphone icon, adjust the input channel of the interpreter, and listen to the sound of the corresponding channel through the earphone.

2.6.3.17.Headphone output

After inserting the headset microphone, you can speak through the headset microphone for translation.

2.6.3.18.Speaker output

When the earphone is not inserted, and the room where the interpreter is located is idle, adjust the input channel of the interpreter so that the speaker can hear the sound of the corresponding channel.

2.6.3.19.36V external power supply

If the power supply is not enough for multi-level cascading, you can plug in a 36V DC power supply.

2.6.3.20.Working status of the translation room

① Idle state: If there is no interpreter microphone in this translation room, the green lights of all interpreter microphone poles in this translation room will flash. If the earphone is not plugged in, the speaker of the interpreter will output the sound of the corresponding channel.

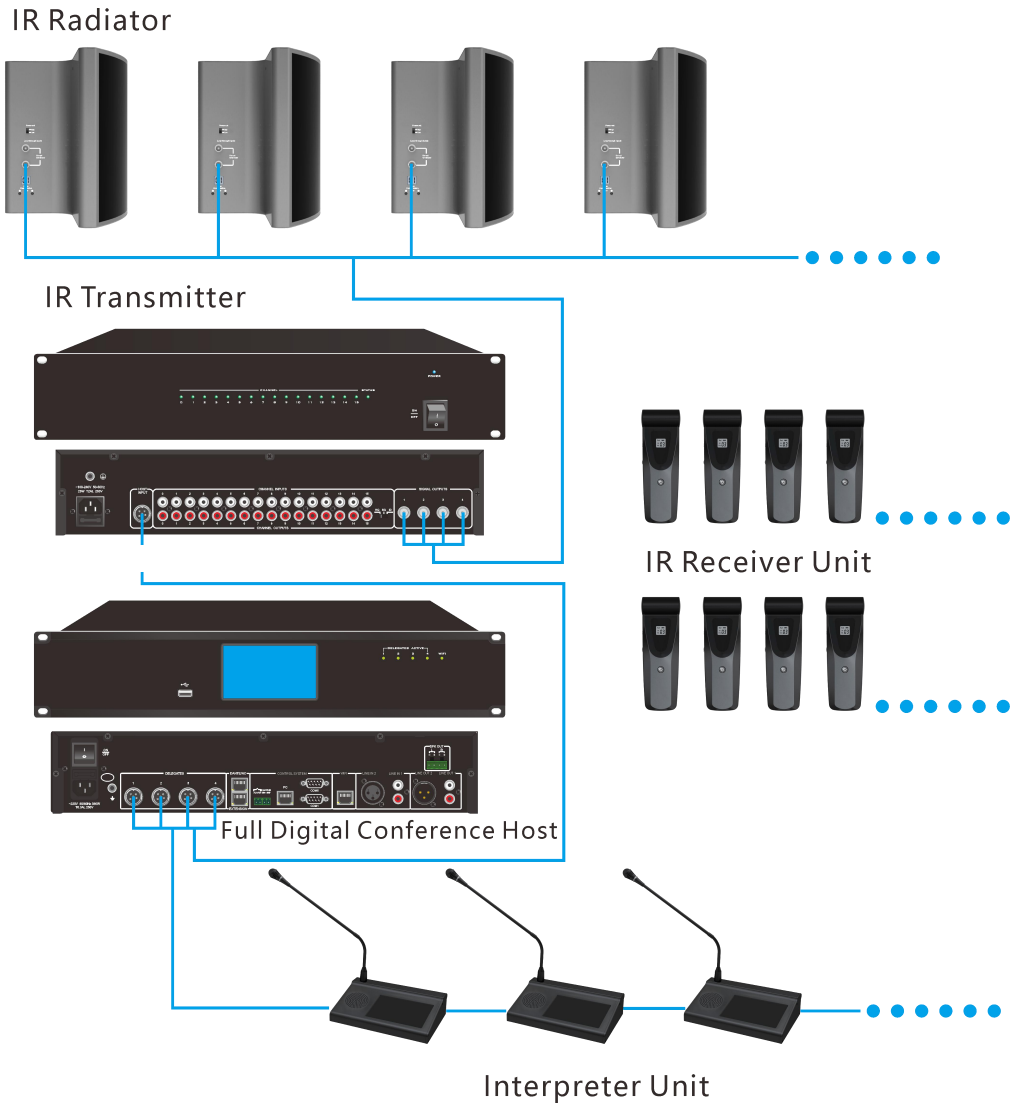
② Working status: When the microphone of the interpreter in this translation room is turned on, the green lights of all the microphones of the interpreter in this translation room stop flashing and go out, and the speakers will not output the sound of the corresponding channel.

2.6.4.Specification

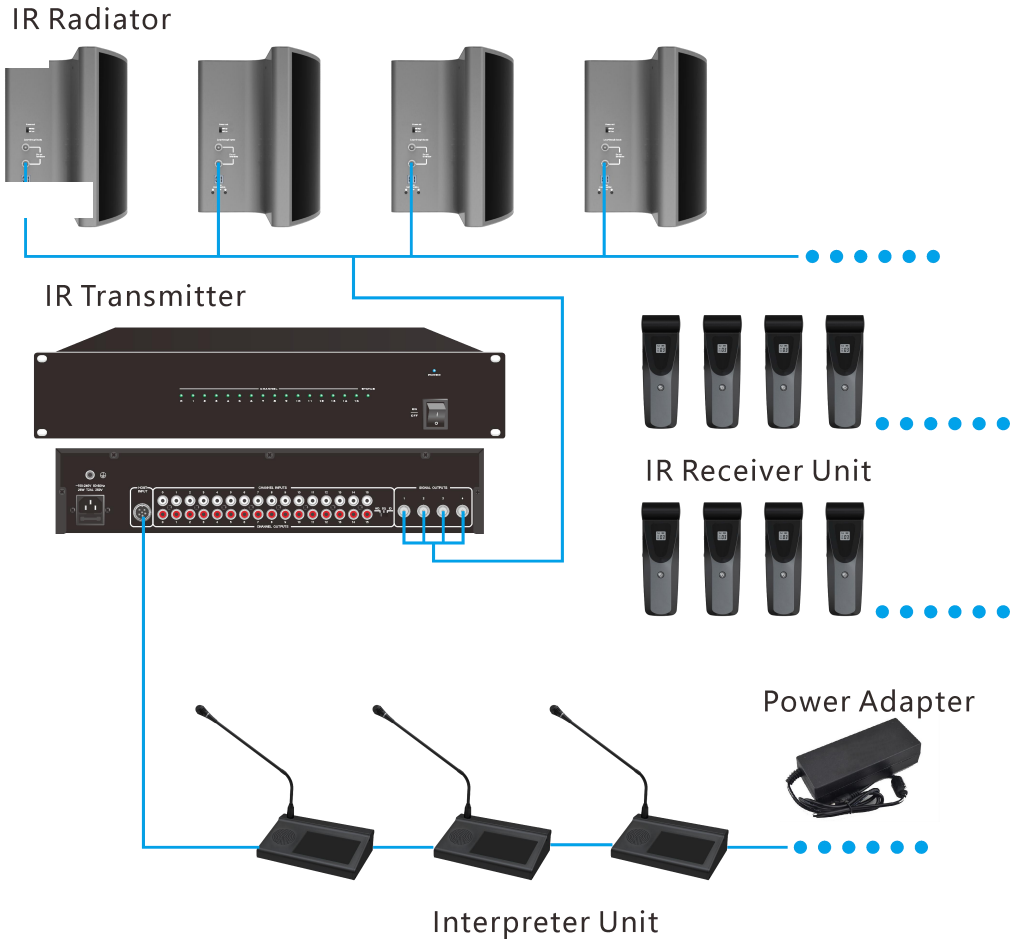
Model	TS-0370HY
Microphone type	Cardioid Electret Microphone
Frequency response	80Hz~16KHz
Mic input impedance	2.2KΩ
Sensitivity	-34dBV/Pa
SNR	>80dB(A)
Dynamic range	>80dB
THD	<0.01%
Max power consumption	4W
Power supply	Aviation port power supply/DC port 36V power supply
Color	Black
Display screen	7-inch resistive touch screen
Microphone pole	409mm
Dimension (L*W*H)	268*160.83*70mm (Excluding the length of the mic pole)
Installation method	Desktop installation

3.System Wiring Diagram

Solution 1:



Solution 2:



1.Install the host on a standard rack, and install the IR radiator in the corner of the room, so as to radiate to every corner as far as possible;

2.Turn on the interpreter unit: turn off the microphone to listen to the original sound, turn on the microphone to translate and correspond to the language channel, and use the receiver unit to listen to the corresponding channel;

3.If solution 2 is selected, the full digital interpreter unit should be equipped with a power adapter, because the IR transmitter does not provide power.

4.Installation Precautions

The infrared simultaneous interpretation system is easy to install (it depends on the positioning and calibration of the radiator); just connect the equipment directly, no excessive cabling.

Once installed, the system can be extended at any time, and if the conference grows, simply increase the number of receivers and the basic structure of the system remains the same.

The following focuses on the installation and debugging methods of the radiator:

4.1.Directional characteristics of reception and transmission

The digital infrared receiver has an ultra-wide receiving angle, so that the receiver can be placed anywhere to receive perfect sound quality. As shown in Figure 4-1-1.

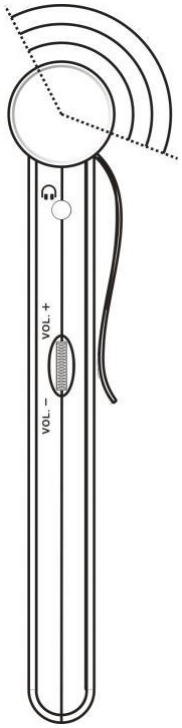


Figure 4-1-1 Best receiving range of the IR receiver

The radiation area of the IR radiator is elliptical, that is, as the distance increases, the diameter of the radiation area increases accordingly until it exceeds a certain limit.

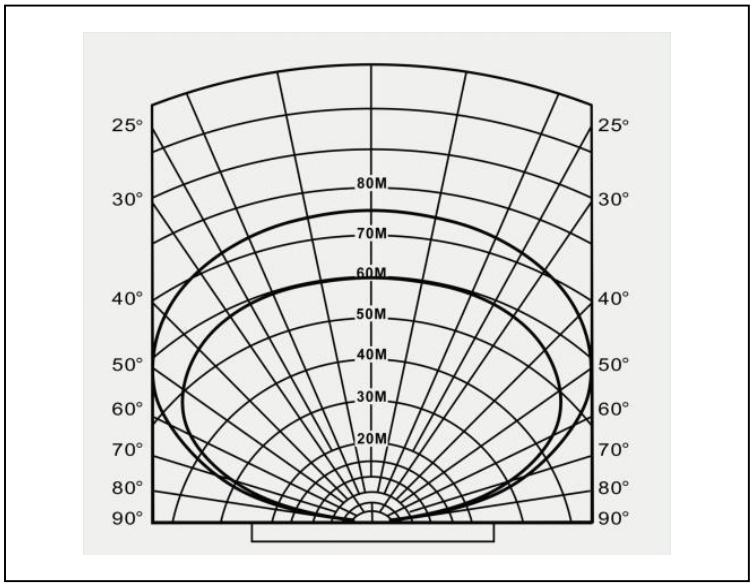


Figure 4-1-2 Coordinate direction of the IR radiator

4.2.Influence of IR radiator and seating arrangement

If the receiver and the radiator are precisely aligned, the best transmission signal can be received. If the radiator or the receiver is off the optical axis, the received energy will drop. However, in the radiation area, as long as the receiver is not directly shielded from the radiator (e.g by a person or an object in front of the receiver), the energy is still sufficient. Figure 4-2-1 shows an obstructed installation:

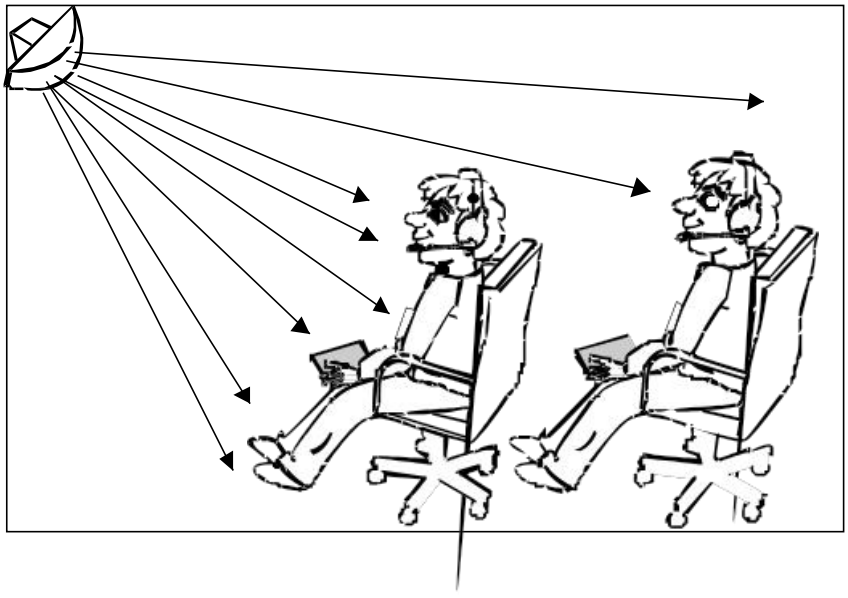


Figure 4-2-1 Obstructed installation

To ensure optimal transmission of the signal, the spatial arrangement of the radiators must be adapted to the seating arrangement, ideally by directing the infrared light in front of each seat. This is a design guideline for radiator installations. We obviously prefer to install the IR radiator as shown

in Figure 1-4. However, it is difficult to fully achieve the transmission and reception effect of Figure 4-2-2 in actual engineering installation. At this time, we need to use the reflected signal to complete the signal coverage.

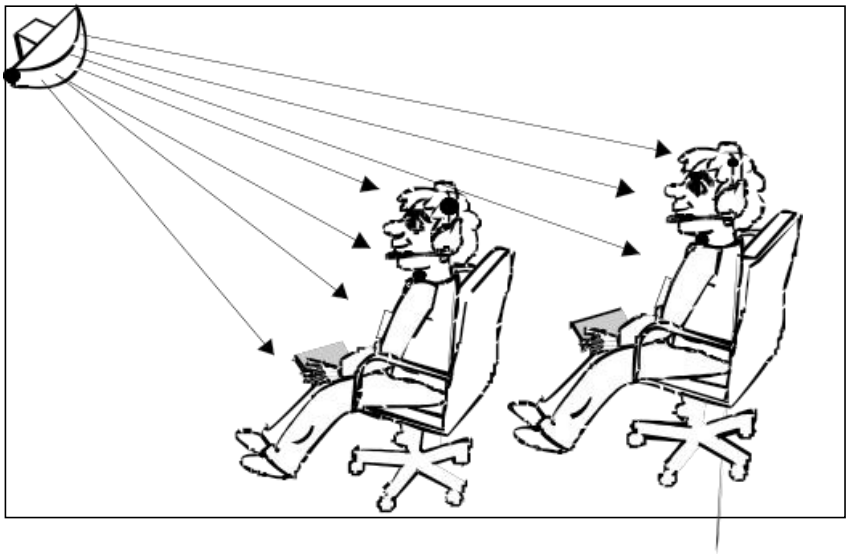


Figure 4-2-2 Unobstructed installation

In Figure 4-2-3, the receiver not only receives the direct signal, but also receives the reflected signal transmitted from various surfaces. And the reflected signal in this case can enhance the signal strength.

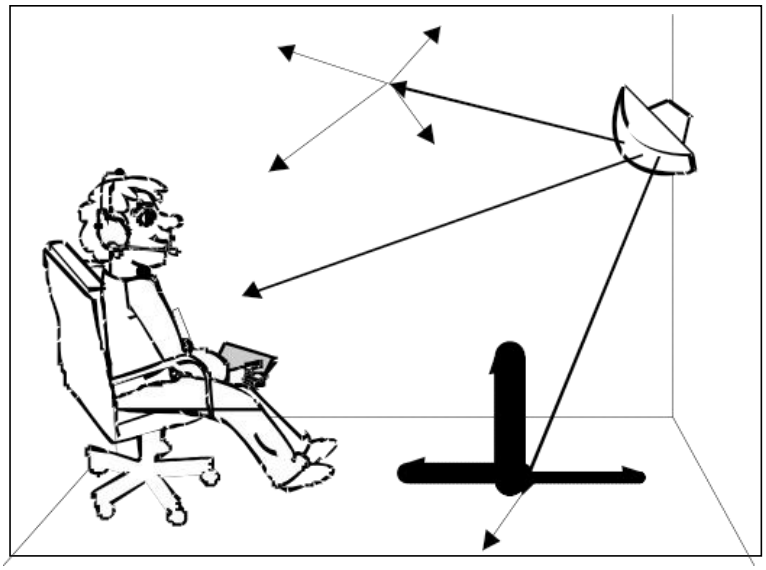


Figure 4-2-3 Combination of direct radiation and reflection

In Figure 4-2-4, the receiver only relies on reflected signals around to realize signal reception. Relatively speaking, the reception effect in this case is slightly worse than that of direct signals. But the signal energy is still sufficient. In order to avoid blocking infrared rays when people walk, the installation height of the radiators is recommended to be higher than 2.5 meters.

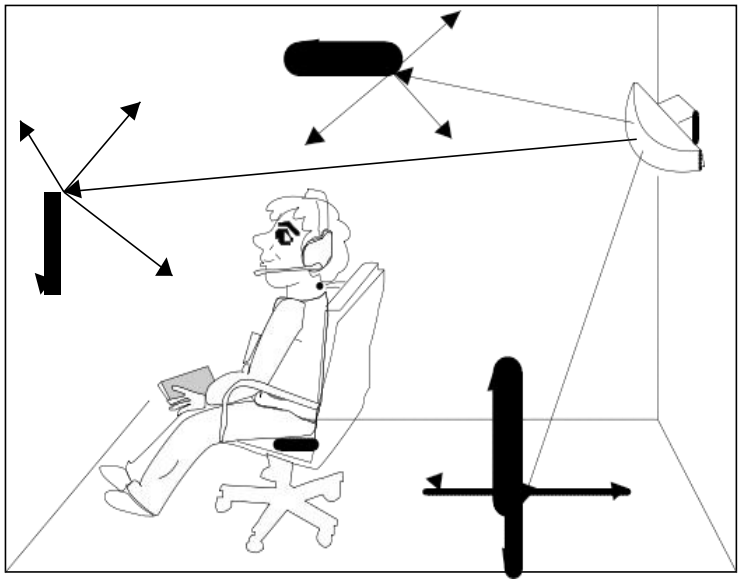


Figure 4-2-4 Height can reduce obstruction

4.3.Walls, ceilings, floors and curtains

Infrared, like visible light, can be reflected by bright and smooth surfaces and absorbed by dark and rough surfaces. The reflected light usually has a positive effect on the transmission of the signal; it does not cause any destructive interference. Radiator power is required to be lower in rooms with bright, smooth surfaces than in rooms with dark, rough surfaces such as carpets and curtains. In addition, there are also obvious differences in the reflection results on different textures of the ground surface; the shadows of walls and furniture will affect the infrared transmission, and the use of enough radiators and careful placement of them can solve these problems. At the same time, it should be noted that the radiator cannot face the window without curtains, which will reduce the effect of radiation. As shown in Figure 4-3, the surface reflection of various textures varies.

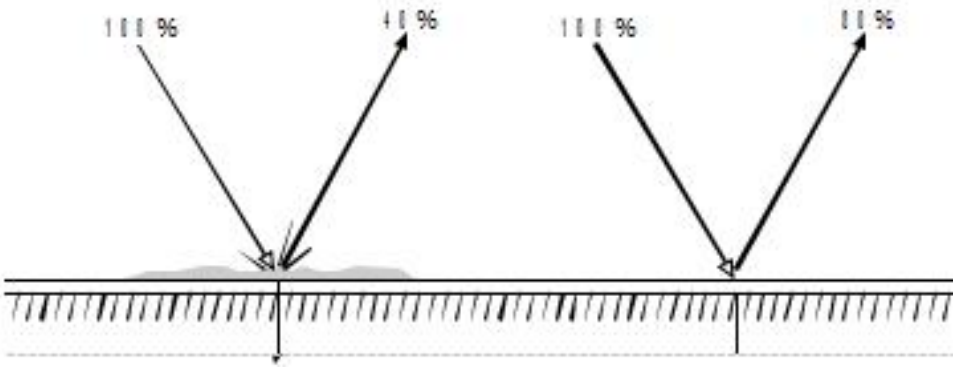
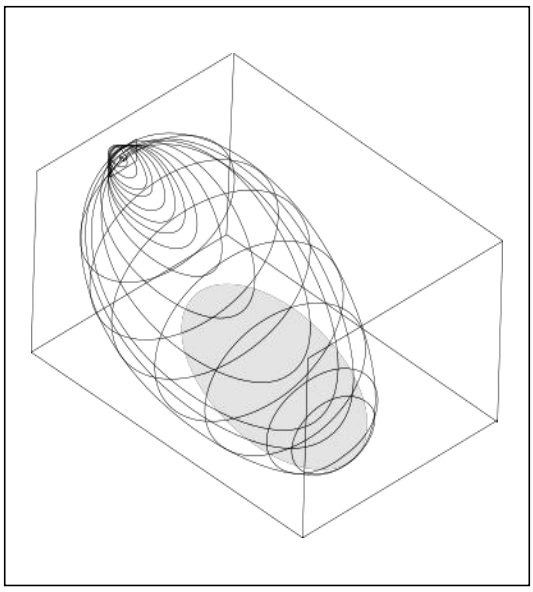


Figure 4-3 Differences in reflection of different media

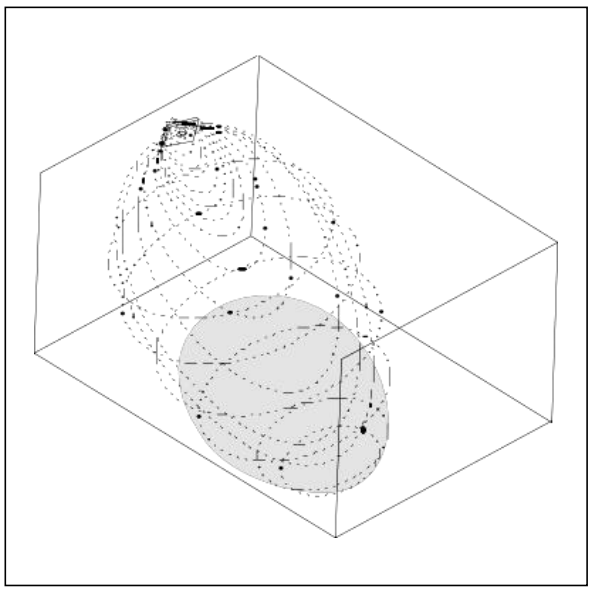
4.4.Coverage of IR radiators

In the system, the number of carriers of the transmitter and the output power of the IR radiator determine the coverage of the IR radiator. Increasing the number of IR radiators can increase the coverage. The total radiation intensity of the IR radiator is allocated in the transmitter according to the number of carriers. The number of carriers used increases and the coverage ratio is correspondingly reduced.

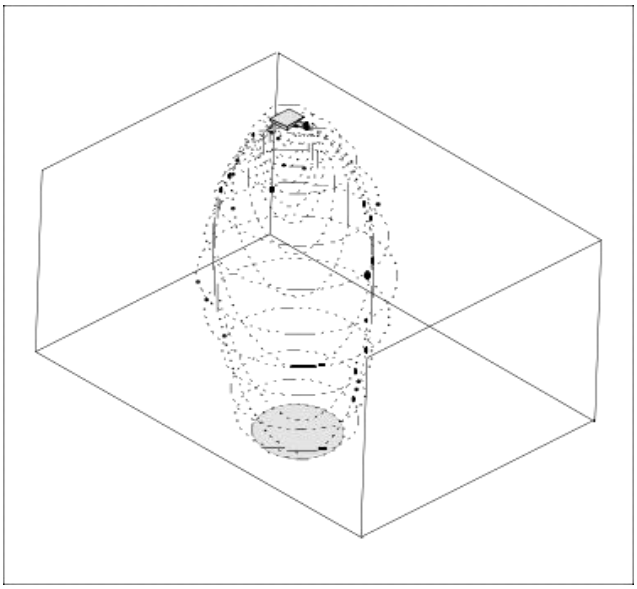
The following figure shows the intersection of the radiation distribution map and the receiving plane of the participants, that is, the coverage area. In this area, if the radiation signal can directly reach the receiver, the strength of the direct signal is sufficient to ensure normal reception. The following will provide a reference for the coverage effect of several different angles of installation:



Installation diagram in 15° direction



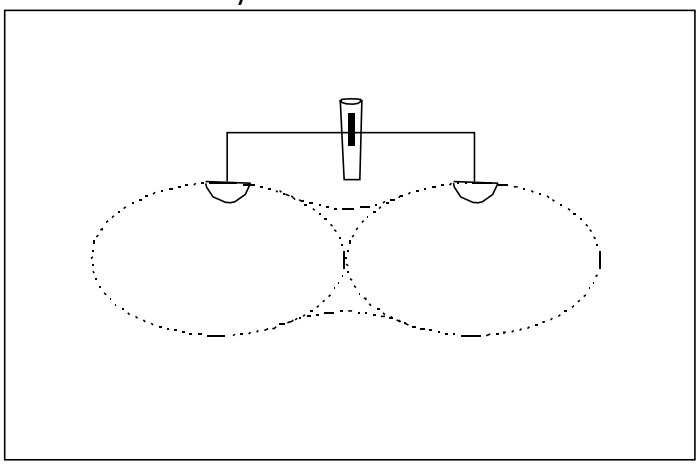
Installation diagram in 45° direction



Installation drawing in 90° direction

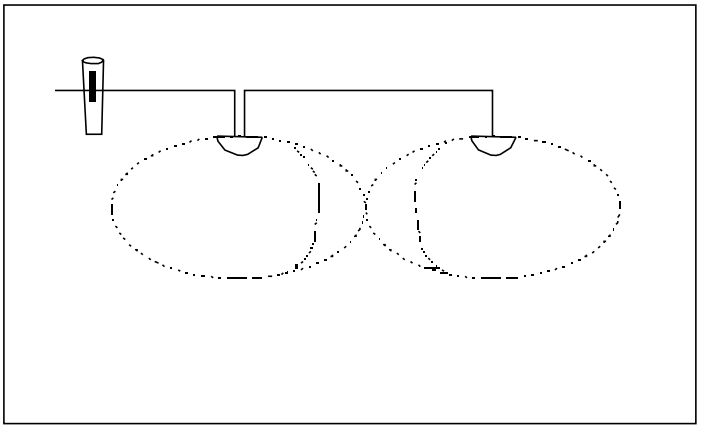
4.5.Overlapping floor areas and multi-path effects

Overlapping will increase the coverage area. For the IR radiators installed in the venue, the coverage area between the two IR radiators will partially overlap, and the total overlapping coverage may be greater than the sum of the coverage of the two individual IR radiators, making the radiation intensity greater than the desired intensity.



Overlapping coverage of two radiators

Since the receiver receives signals from multiple radiators, they may cancel each other due to delay differences, or some locations may not receive signals at all. Signal delay can be compensated by the delay compensation switch on the IR radiator.



The two radiator signals are delayed and the area is reduced.

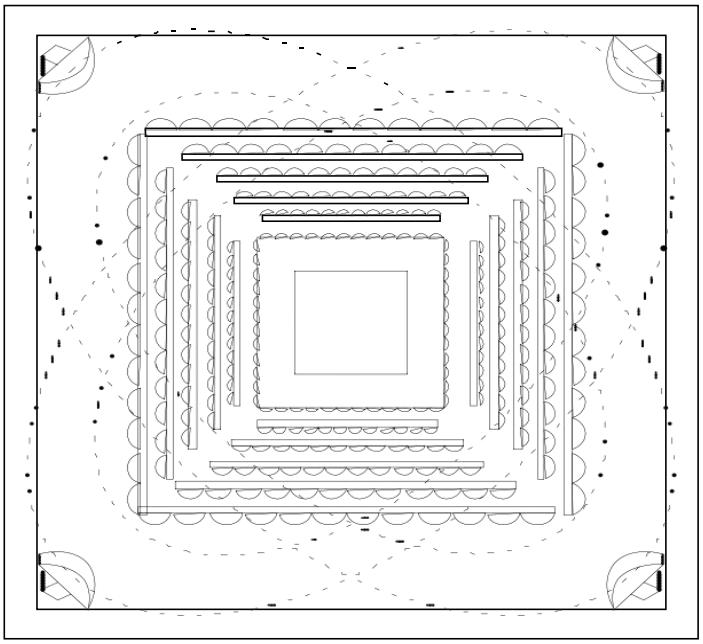
4.6.IR radiator installation

Infrared radiation can be transmitted directly or reflected to the receiver; in the venue, the representatives in the front row will block the signals of the receivers in the rear row. These are all problems to be considered when installing the IR radiator. Therefore, when installing the IR radiator,

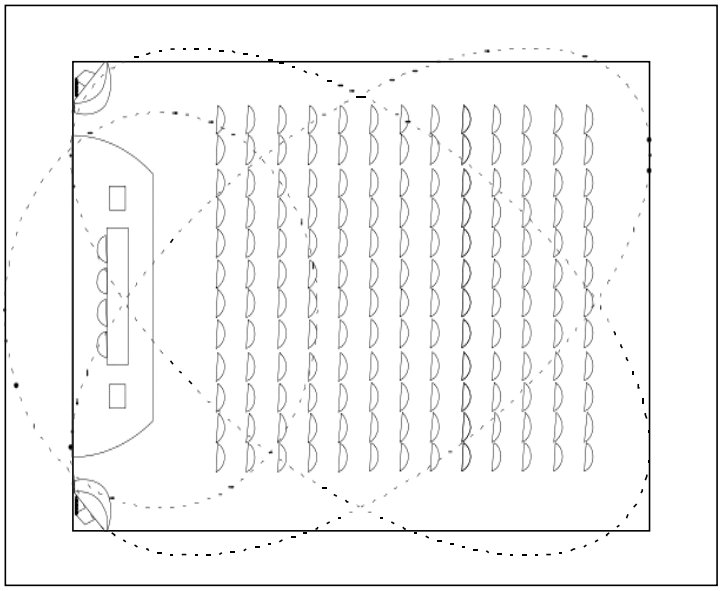
its position should not be lower than 2.5m. Facing the IR radiators to the center of the venue from all angles can effectively cover the conference area, and the installation should be as symmetrical as possible.

The higher the radiant panel is installed, the reception will not completely drop to zero in shady areas, as infrared light can be reflected (exactly as visible light). It can thus appear in the form of diffuse light in shaded areas. However, the reception quality is extremely poor in this case.

When it is simply impossible to install the IR radiator on the existing ceiling, wall or load-bearing structure, it must be fixed and installed in a reasonable position in the room according to the above principles to ensure the normal transmission of infrared signals.

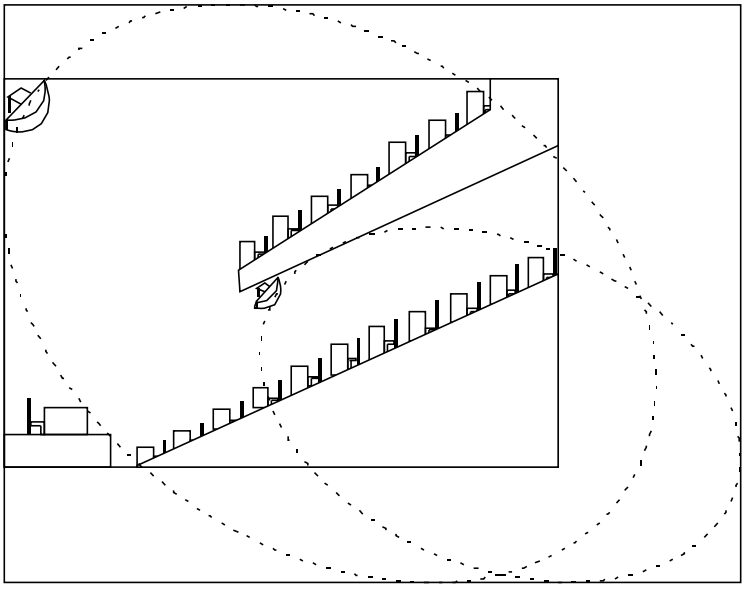


Square infrared coverage



Coverage of the auditorium and the podium

If there is an infrared transmission obstacle in the venue, a IR radiator must be added to cover the "blind zone" to ensure the normal transmission of infrared signals.

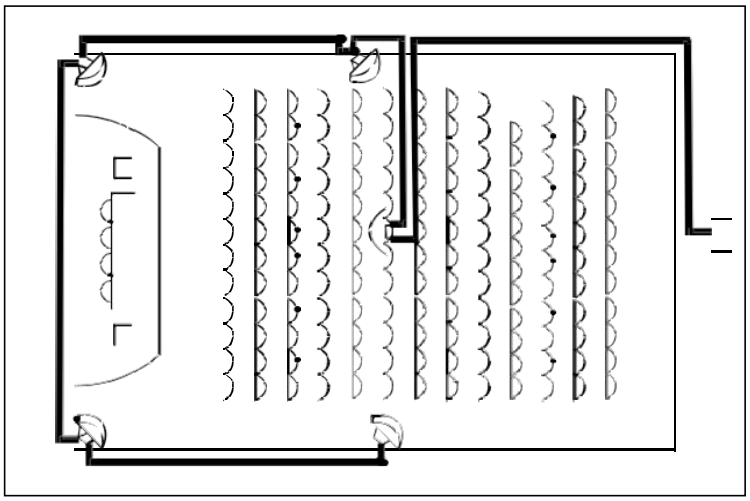


Infrared coverage under the "blind zone"

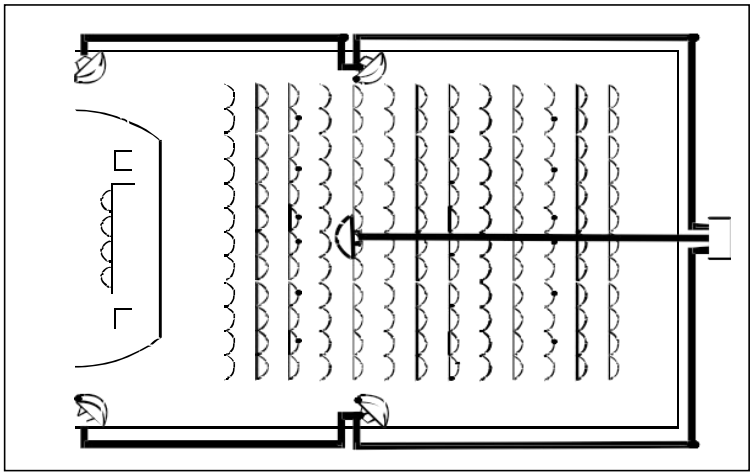
4.7.IR radiator wiring

The delay difference of the signal can be caused by the distance between the transmitter and each radiator. In order to avoid the "blind spot" to the greatest extent, please try to connect symmetrically and use the same length of cable when connecting.

The cable signal delay can be compensated using the signal delay compensation switch inside the IR radiator.



Asymmetrical connection (Avoided)



Symmetrical connection (Recommended)

4.8.Rectangular floor area

How many IR radiators will be used to provide 100% coverage of the venue can only be determined through field trials, but a fairly close estimate can be made using the "secure rectangular floor area".

Figure 4-8-1 and Figure 4-8-2 illustrate what "rectangular floor area" is. It can be seen that the rectangular floor area is smaller than the total floor area. Note that in Figure 3-7, the "offset value" X is negative, the actual installation position of the radiators has exceeded the starting point of the "rectangular floor area" in the horizontal direction.

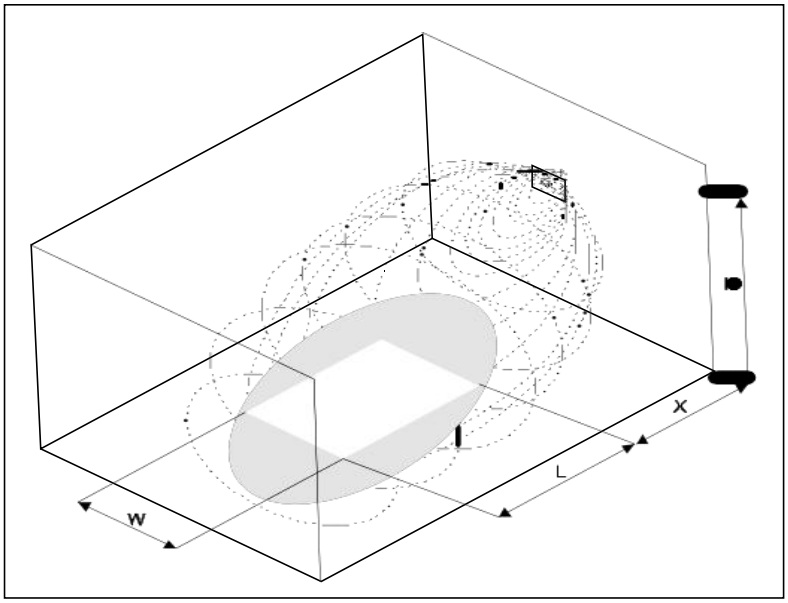


Figure 4-8-1 Typical rectangular floor area when installed at 15°

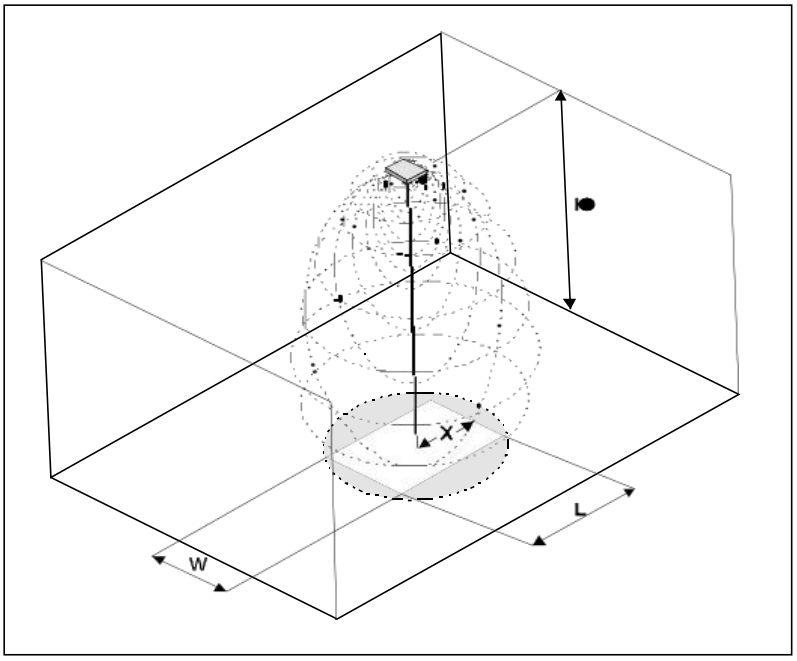
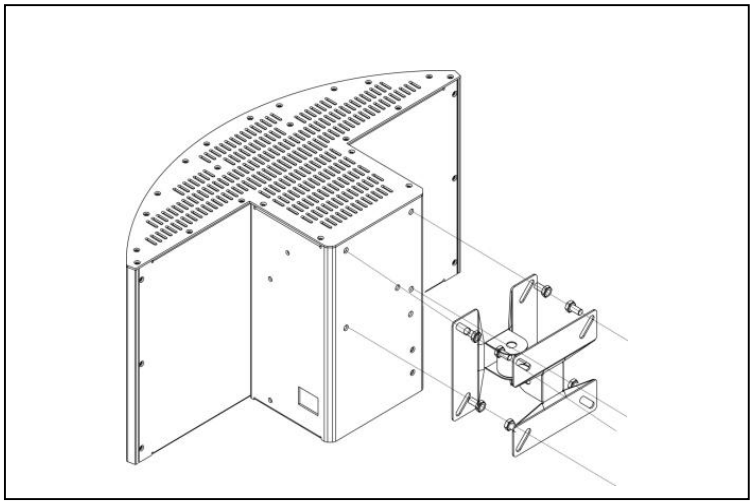


Figure 4-8-2 Typical rectangular floor area when installed at 90°

4.9.How to install IR radiators

The IR radiator can be installed on the wall or ceiling. A set of fixing brackets and screws are included with the package. The installation is shown in the following figure:

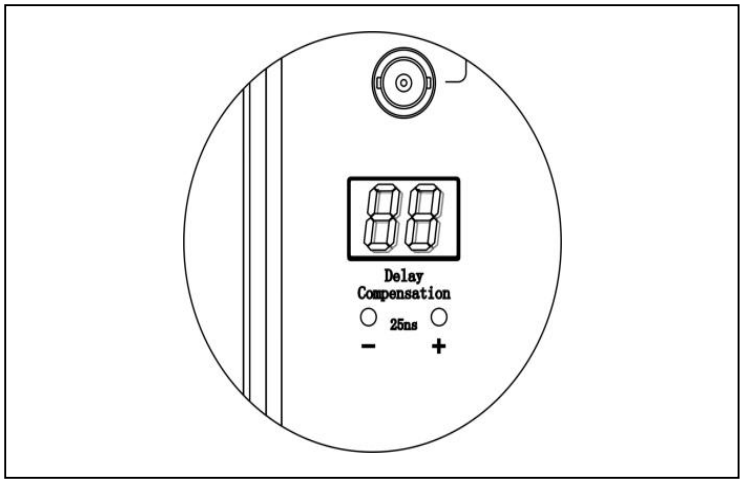


Note: Before determining the installation location, make sure that the air flow around the radiator units is unobstructed, so as to prevent the radiator unit from being overheated.

4.10.Calculation formula of delay parameters for multiple IR radiators (more than two):

$$X=\frac{(L_{MAX}-L)\times 5.6}{25}$$

According to overlapping multi-path effects described in the previous section, the signal received by the receiver from two or more radiators can cause "blind spots" due to delay differences.
In order to compensate for the signal delay differences, you can increase the delay of the corresponding IR radiator by adjusting the delay compensation switch on the side of the IR radiator. The delay compensation window can display two digits from "00" (00 means no delay) to "99". If the displayed value is multiplied by 25ns, the delay time that can be adjusted is 25ns-2475ns (99X25).



If the cable is directly connected to the system of the transmitter, there is no need to consider the delay of the cable signal. In this case, adjust the delay switches on all IR radiators to "00", and confirm whether the radiation signal delay needs to be compensated.
Take the delay of the IR radiator farthest from the infrared transmitter as the reference, and then use the "+" or "-" button to adjust the delay of other IR radiators, so that the delay of each IR radiator is consistent with the reference time.

Calculation formula:

- ◆Cable delay coefficient 5.6ns/m;
- ◆X: Delay compensation parameters displayed on the window;
- ◆L MAX: The maximum length from the IR transmitter to the IR radiator (m);
- ◆L: The distance from the adjusted IR radiator to the IR transmitter (m);

Determine the time delay switch setting by measuring the cable length as follows:

◆Measure the cable length L from the IR transmitter to each IR radiator;

◆Figure out the cable length LMAX of the IR radiator farthest from the IR transmitter;

◆Calculate the difference between the maximum cable length LMAX and the cable length L from the IR transmitter to other radiators;

◆Divide the signal delay difference by 25, and the obtained integer (rounded up) is the setting parameter of the delay compensation switch on the IR radiator.

◆If necessary, when overlapping areas appear, the delay switch setting parameters of the IR radiators that are closer to the overlapping areas should be increased accordingly to compensate for the delay of radiation signals;

◆Set the delay switch according to the calculated setting parameters.

4.11.Control and indication

◆ 2 delay compensation buttons are used to compensate for the difference in cable length between the transmitter and the IR radiator.

4.12.Interconnection

◆ The output socket (2XBNC) is used to connect to the transmitter and connect to the next IR radiator in series.

5.Troubleshooting

1. The power indicator of the host does not light up

Check whether the power I/O switch is closed and whether the power input of the device is in good contact.

A. There are two characters on the power switch, that is, "O" and "I". When the "O" side is pressed down and the "I" side is up, it means that the device is powered off, otherwise it is powered on.

B. Check whether the plug of the power socket is properly connected, or unplug the power cord and plug it back into the socket to make sure that the connection is normal.

2. When there is obvious static electricity when plugging or unplugging the serial port or connecting the cable interface, it may be that the power supply of the device is not well grounded. Please ground it in the correct way, otherwise it will easily damage the host and shorten its service lifespan.

A. Since the host uses a 100-240V switched power supply, in order to better prevent static electricity, be sure to use a three-pin power cable instead of a two-pin power cable.

B. Check whether the grounding end of the local power socket is well grounded.

3. The indicator light of the IR radiator does not light up

A. Please check whether the power cable is connected normally, and check whether the signal connection is normal.

4. The receiver works abnormally

A. If the dry battery is used, please check whether the battery power is sufficient and whether it is installed correctly.

B. If the rechargeable battery is used, check whether it is charged to saturation.

C. Check whether the connection between the headset and the receiver is normal.

D. Check whether the receiver can receive the infrared signal of sufficient strength.

E. Check whether the volume is turned on, and turn it on to the maximum volume.

F. Please avoid direct sunlight on the receiver, for example, do not expose it to sunlight.

G. If the receiver makes noise or sound distortion, please adjust the distance between the receiver and the IR radiator or adjust the receiving direction.

5. About charging the receiver

A. When the receiver is put into the charging box, the indicator light is green, please check whether the contact of the receiver and the contact of the charging base are in good contact. And the receiver is in the charging state when the indicator turns red.

B. If the indicator light does not light up when charging, please check whether the battery in the receiver is installed correctly; check whether the receiver is abnormal in temperature, whether it is in good contact, and whether it is fully charged.

6. Unable to hear the translation channel of the interpreter unit

A. Check whether the interpreter unit is powered on.

B. Check whether the interpreter unit channel corresponds to the receiver.

C. Check whether the network is normal and whether the microphone is turned on.

Digital IR Audio Distribution System

Version 0.1